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TON, ANTHONY T	

ART UNIT	PAPER NUMBER
2661	6

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Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/627,680	COLE ET AL.	
	Examiner	Art Unit	
	Anthony T Ton	2661	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on *07/28/00*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-46* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-46* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *28 July 2000* is/are: a)☐ accepted or b)☒ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. §§ 119 and 120

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

13)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

a) ☐ The translation of the foreign language provisional application has been received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) *4*.
4) ☐ Interview Summary (PTO-413) Paper No(s). _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other:

DETAILED ACTION

Drawing Objections

1. The drawings are objected to because of the following minor informalities:

Figure 2: Accordingly, page 14 lines 4, 6 and 8 of applicant's specification, label "203", which specifies for a copper wiring line connected from Customer Premises to a Central Office, is missing.

A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

Claim Objections

2. Claims 10, 13, 16, 22 and 45 are objected to because of the following informalities:

a) Claim 10: Term "the line" in line 2. Is this "the copper line"? If so, it is suggested that change "on the line" to "into the copper line"; otherwise, specify a sufficient antecedent for this term.

b) Claim 13:

- Term "coupled the copper" in line 5. It is suggested that change "coupled the copper" to "coupled to the copper".
- Term "substantially" in line 8 is a relative term. It is suggested that this term should be deleted.

c) Claim 16: Terms "current to voltage transducer" in lines 1 and 2; it is suggested that change "current to voltage transducer" to "current-to-voltage transducer".

d) Claim 22: Terms "adapted provide" in line 9; it is suggested that change "adapted provide" to "adapted to provide".

e) Claim 45: Term "and" in line 5 should be deleted since the claimed limitation is not ended at the next limitation; it is suggested that change "line; and" to "line;".

Appropriate correction is required.

Claim Rejections - 35 USC § 112

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter, which the applicant regards as his invention.

4. Claims 22, 30, 33, 38, 39 and 46 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

a) Claim 22 recites the limitation "the particular out-of-band data transmission protocol" in line 14. There is insufficient antecedent basis for this limitation in the claim.

b) Claim 30 recites the limitation "the test signals" in lines 2 and 3. There is insufficient antecedent basis for this limitation in the claim.

c) Claim 33 recites the limitation "the test signal" in line 2. There is insufficient antecedent basis for this limitation in the claim.

d) Claim 38 recites the limitation "the test signals" in lines 3 and 4. There is insufficient antecedent basis for this limitation in the claim.

e) Claim 39 recites the limitation "the copper line" in line 3, there is insufficient antecedent basis for this limitation in the claim; it is suggested that change "the copper line" to "the communication line".

f) Claim 46 recites the limitation "the particular user device" in lines 7, 8 and 9, there is insufficient antecedent basis for this limitation in the claim.

Claim Rejections - 35 USC § 102

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

6. Claims 1-3, 9-13 and 18-21 are rejected under 35 U.S.C. 102(b) as being anticipated by British Company (WO 95/31865).

a) Claim 1: The British Company (BC) disclosed a method for measuring the transmission characteristics of a telephone line connecting a customer's telephone apparatus to a local exchange. The invention is particularly concerned with the measurement of the transmission characteristics of a telephone line constituted by a copper pair, the method comprising:

applying a test signal at one point in the copper line (see page 1 line 33 – page 2 line 1; and page 5 lines 3-14);

monitoring a response and determining the suitability of the copper line for data transmission (see page 3 lines 16-23) using a particular out-of-band data transmission

scheme such as ADSL (see page 5 lines 15-25); and comparing the monitored result with a template (see page 3 lines 12-15; and page 5 lines 25-30).

b) Claims 2 and 3: The method of claim 1, wherein the particular out-of-band data transmission scheme comprises a digital subscriber line (xDSL) transmission scheme; and wherein the particular out-of-band data transmission scheme comprises an asymmetric digital subscriber line (ADSL) transmission scheme (see page 1 lines 15-30).

c) Claim 9: The method of claim 1, wherein determining the suitability of the copper line includes comparing the monitored response of the copper line with an empirically derived template defining a suitable response limit for the copper line (see page 2 lines 22-25; page 3 lines 12-15; page 5 lines 25-30; and page 6 lines 6-10).

d) Claims 10 and 11: The method of claim 1, wherein applying the test signal comprises injecting a modulated signal into the line at a frequency corresponding to the particular out-of-band data transmission scheme; (see page 3 lines 1-8; page 5 lines 3-14; and page 5 line 31 – page 6 line 5); and wherein monitoring the response of the copper line includes determining whether the modulated signal at the frequency corresponding to the particular out-of-band data transmission scheme is demodulated (see page 3 lines 12 – 23; and page 5 lines 21 –27).

e) Claim 12: The method of claim 11, wherein determining the suitability of the copper line includes the monitored response of the copper line with an empirically derived template defining a suitable response limit for the copper line (see page 2 lines 22-25; page 3 lines 12-15; page 5 lines 25-30; and page 6 lines 6-10)

f) Claim 13: The claimed limitations disclosed in the claim 1 are the same as that in the Claim 13 except for the following limitations: a signal generator, monitoring circuit, and a processing unit. However, the BC does teach such limitations; see label 12 in Fig. 2, labels 10 – 13 in Fig. 2, and labels 14 and 15 in Fig.3, respectively. Therefore, the BC would apply the rejections in the claim 1 to claim 13 in a device as taught.

g) Claim 18: The device of claim 13, further comprising a memory arrangement coupled to the processing unit for storing an empirically template defining a limit for a suitable response of the copper line to the test signals for the particular out-of-band data transmission scheme (see label 15 in Fig. 3 and page 6 line 15).

h) Claim 19: The device of claim 18, wherein the processor is adapted to compare the monitored response of the copper line with the empirically derived template and output an indication that the copper line is suitable for the particular out-of-band data transmission scheme when the monitored response is within the limit defined by the empirically derived template (see page 2 lines 22-25; page 3 lines 12-15; page 5 lines 25-30; and page 6 lines 6-10)

i) Claim 20: The difference between claim 20 and claim 1 is that the step of monitoring is within the subscriber's premises; however, the BC also disclosed such monitoring (see page 6 lines 6-19). Therefore, the BC would apply the rejections in the claim 1 to claim 20 as well.

k) Claim 21: The claimed limitations disclosed in the claim 13 are the same as that in the Claim 21. Therefore, the BC would apply the rejections in the claim 13 to claim 21 in a test unit as taught.

Claim Rejections - 35 USC § 103

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

8. Claims 4-8 and 14-17 are rejected under 35 U.S.C. 103(a) as being unpatentable over British Company (WO 95/31865) in view of Mannering et al. (US 6,137,839).

a) Claim 4: The BC failed to disclose the one or more user devices comprise a plurality of user devices including at least one telephone and at least one computer. Mannering et al. do teach such a plurality of user devices (see Fig. 2A). Therefore, it would have been obvious to one of ordinary skill in the art can employ such a plurality of user devices of the BC, as taught by Mannering et al. in order to support both Internet and phone simultaneously.

b) Claim 5: The BC doesn't explicitly determine a need for a filter at location of at least one of the telephone and computer to separate voice band signals and out-of-band signals transmitted on the copper line; however, the BC does implicitly teach such a need to separate the voice band signals from out-of-band signals (see page 2 lines 16-19). Mannering et al. clearly teach such a need for a filter (see Fig.3c and col.5 lines 58-67). Therefore, it would have been obvious to one of ordinary skill in the art can employ such a need of the BC, as taught by Mannering et al. in order to enable an existing copper network to provide broadband services.

c) Claims 6 and 7: It is inherent that the copper line can include a copper network as well as a subscriber line. Therefore, the rejections in the claim 1 would apply to these two claims.

d) Claim 8: Both the BC and Mannering et al. do not explicitly teach the suitability of the copper line includes determining whether any of the one or more user devices has a non-linear characteristic. However, the non-linear characteristic of one or more user devices under interactive and multimedia services on a copper pair phone lines is well known. Official notice is taken that if transmitting signals with higher frequencies, problems would arise through attenuation of the signal strength; it means that attenuation would be increased when increasing a frequency. Therefore, it is well known and accepted as standard in the subject matter area of the invention. It would have been obvious to include such a non-linear characteristic of one or more user devices in the BC or Mannering et al. since it is well known on voice band signals, which can be carried in frequencies less than 4kHz, and data signals must be carried in frequencies typically from 50kHz to 1MHz.

e) Claims 14 and 15: The BC and Mannering et al. would apply the rejections on the claims 6 and 7 to claims 14 and 15, respectively, in a device as taught.

f) Claim 17: Both the BC and Mannering et al. do not explicitly teach a monitoring circuit as that of the Applicant. However, the monitoring circuit with a resistor coupled in series between a signal generator and a copper line, an Op Amp whose input terminals coupled to two sides of the resistor respectively, and an A/D converter coupled to the output of the Op Amp is a design choice to evaluate test

results based on test signals applied to the copper line, so that the suitability of the cooper line can be determined throughout the test results. Therefore, it would have been obvious to one of ordinary skill in the art can employ such a monitoring circuit of the BC or Mannering et al., as taught by the Applicant in order to monitor the current strength of a current flowing into the copper line.

g) Claim 16: A current-to-voltage transducer as taught by the Applicant is just a resistor as described in claim 17 above. Therefore, the rejections on claim 17 would apply to claim 16 in a monitoring circuit as taught.

Claim Rejections - 35 USC § 103

9. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

10. Claims 22-46 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bingel et al. (US 6,014,425, IDS paper #4) in view of Mannering et al. (US 6,137,839).

a) Claims 22 and 23: Bingel et al. disclosed an apparatus and method for qualifying telephones and other attached equipment for optimum digital subscriber line (DSL) operation. The invention generally relates to an apparatus and method testing and monitoring data communications equipment that may impact the operation of a multiple channel data communications device residing on the same connections as the

equipment, and more particularly to an apparatus and method to allow a user to identify data communications equipment that limits the achievable data rate of a multiple channel data communications device residing on the same connections as the equipment. A communication system, comprising:

a communication line (see label 101 in Fig.2);

a plurality of user devices coupled to the communication line (see Customer Premises #1 to #N in Fig. 1); and

a computer system coupled to the communication line (see label 150 in Fig. 1; col.6 line 40 – col.7 line 19; and col.7 lines 20-52), the computer system comprising:

a modem adapted to communication over the communication line (see label 110 in Fig.1); and

a test unit adapted to determine the suitability of the communication line for use in transmitting data signals, monitor a response of the communication line to the test signal as influenced by the user devices, and output and indication of suitability of the communication line for use in transmitting data signals based on the response (see Figs 1 and 2; col.5 lines 17-46; and col.7 line 53 – col.9 line 42).

Bingel et al. do not clearly teach an out-of-band data transmission protocol such as ADSL and xDSL. However, Bingel et al. do teach a modem having a digital signal processor (DSP) engine for processing data information (see label 250 in Fig.2). Mannering et al. clearly teach such a protocol (see col.9 lines 51-53). Therefore, it would have been obvious to one of ordinary skill in the art can employ such a protocol

of Bingel et al., as taught by Mannering et al., so that a test signal can have a known relationship to the out-of-band data transmission protocol on a communication line for monitoring the response of the communication line in order to determine the suitability of the communication line.

b) Claims 24 and 25: Bingel et al. failed to a computer system is adapted to contact a vendor for supplying service using out-of-band data transmission over the modem, and wherein the computer system is adapted to provide the vendor with physical location information associated with the communication line and receive service availability data based on the physical location information. However, Bingel et al. do teach an Internet that connected to customer premises. Therefore, it is inherent that the customer premises can communicate with a vendor throughout the Internet for providing the customer premises' physical information as well as requesting a service availability data from the vendor.

c) Claim 26: The system of claim 22, wherein the computer system is adapted to instruct a user to disconnect certain of the user devices from the communication line, and the test unit is adapted to iterate its function of providing the test signal, monitoring the response, and outputting the indication of the suitability of the communication line for each disconnection (see Figs 7A and 7B; col.7 line 53 – col.8 line 65; and col.5 lines 31-34).

d) Claim 27: The system of claim 26, wherein the computer system is adapted to identify and interfering from among the user devices based on the iterative responses generated by the test unit (see col.8 lines 35-49).

e) Claims 28 and 29: Bingel et al. do not disclose a local filtering device between the interfering device and the communication line, wherein the local filtering device comprises at least one of a filter and splitter. However, Bingel et al. having a splitter installed at the central office to filter low band frequency and high band frequency; moreover, Bingel et al. also having a modem attached to corresponding digital devices for functioning data information (see label 110 in Fig. 1 and Fig.2). Therefore, it is inherent that Bingel et al. teach all limitations of these two claims.

f) Claim 30: The system of claim 22, wherein the test unit is adapted to store an empirically derived template defining a limit for suitable response of the communication line to the test signal for the particular out-of-band data transmission protocol, compare the monitored response of the communication line with the empirically derived template, and output an indication that the communication line is suitable for the particular out-of-band data transmission protocol in response to the monitored response being within the limit defined by the empirically derived template (see col.6 line 41-62; col. 5 lines 31-33; and col.7 lines 20-52).

g) Claim 31: The limitations of this claim are the same as that of claim 22 and claim 26. Therefore, the rejections on claims 22 and 26 would apply to claim 31 in a method as taught.

h) Claim 32: The method of claim 31, further comprising iteratively disconnecting each of the user devices and repeating the providing, monitoring, and determining steps to determine if any of the user devices disconnected from the communication line are

interfering devices (see col.7 line 53 – col.8 line 65; col.5 lines 31-34;and col.8 lines 35-49).

i) Claims 33-35: Bingel et al. would apply the rejection on the claims 23-25 to claims 33-35, respectively, in a method as taught.

j) Claims 36, 37 and 38: Bingel et al. would apply the rejections on the claims 28, 29 and 30 to claims 36, 37 and 38, respectively, in a method as taught.

k) Claim 39: Bingel et al. do not clearly disclose the step of method for determining a need for a filter at location of at least one of the user devices to separate voice band signals and out-out-band data signals transmitted on the copper line. However, Bingel et al. having a splitter installed at the central office to filter low band frequency and high band frequency; moreover, Bingel et al. also having a modem attached to corresponding digital devices for functioning data information (see label 110 in Fig. 1 and Fig.2). This modem notifies the user if a less than desirable (predetermined) data rate occurs. This warning notifies the user that there is a device connected to the user premises line that limiting the overall data rate and that each individual POTS device should be checked (see col.5 lines 40-45). Therefore, it is inherent that a need for a filter at location of such a device.

l) Claim 40: The method of claim 31, wherein monitoring the response of the communication line to the test signal includes determining whether any of the user devices has a non-linear characteristic (see abstract, col.2 lines 8-33, and lines 53-58).

m) Claims 41 and 42: The method of claim 31, wherein providing the test signal comprised injecting a modulated signal on the communication line at a frequency

corresponding to the particular out-of-band data transmission protocol (see col.4 lines 44-53); and wherein monitoring the response of the communication line includes determining whether the modulated signal at the particular out-of-band data transmission protocol is demodulated (see col.4 line 57 – col.5 line 8).

n) Claim 43: All limitations of this claim are covered by that of the claim 31 except for the step for repeating the monitoring is different from that of the claim 31. However, Bingel et al. also disclose this limitation (see col.8 line 36-49).

o) Claim 44: Bingel et al. would apply the rejection on the claim 32 to claim 44, in a method as taught

p) Claim 45: A program storage device, encoded with instruction that, when executed by a computer (see col.7 lines 53-65), perform a method, the method comprising:

receiving a first indication related to whether a communication line is suitable for a particular out-of-band data transmission protocol (see step 730 in Fig. 7A; and col.8 lines 24-27);

instructing a user to disconnect at least one user device from the communication line (see col.8 lines 39-42);

receiving a second indication related to whether the communication line is suitable for the particular out-of-band data transmission protocol after disconnection of the user device (see col.8 lines 39-43; and steps 725 and 730 in Fig. 7B); and

designating the user device as an interfering device in response to the first indication being negative and the second indication being affirmative (see col.8 lines 35-48).

q) Claim 46: The program storage device of claim 45, wherein the method further comprises:

iteratively instructing the user to disconnect each of plurality of user devices (see col.8 lines 57-60).

Bingel et al. failed to teach steps of method for receiving a plurality of indications related to whether the communication line is suitable for the particular out-of-band data transmission protocol after disconnection of each of the user devices; and designating particular ones of the user devices as interfering devices in response to the indication received after disconnection of the particular user device being affirmative and indication received prior to disconnection of the particular user device being negative. The reason is that Bingel et al. only use a single jack (see Label 230 in Fig.2) for testing only one modem at a time. However, if Bingel et al. use a multiple jacks for testing a multiple modems at the same, the result would come out as taught by the Applicant. Therefore, it would have been obvious to one of ordinary skill in the art can modify such two steps of Bingel et al., as taught by the Applicant because it would be obvious modifications or variations from the principles of the invention provided by Bingel et al.

Citation of Relevant Prior Art

11. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. The Patent number of the prior art listed below is considered as citation of relevant prior art in the field of the invention is directed to communications systems and methods for determining the suitability of an existing wire network for use with various data transmission technologies: Schneider (US 6,215,855); Schneider et al (US 6,477,238); Chea, Jr. et al (US 6,480,575; US 6,553,105; and US 6,574,309); Zitting et al (6,584,148); Kikui (US 6,549,610); and Bella (US 6,181,775 and US 6,278,769); and Bella et al. (US 6,212,258).

Examiner Information

12. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Anthony T. Ton whose telephone number is 703-305-8956. The examiner can normally be reached on Monday-Friday from 8:00 to 4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Douglas W Olms, can be reached on (703) 305-4703. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-305-3900.

ATT

Douglas W Olms

DOUGLAS OLMS
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